

WHAT IS CLAIMED IS:

1. A method for analyzing gene expression, the method comprising:
 - a) receiving a plurality of dual channel DNA microarray images;
 - b) analyzing said images to determine expression patterns of one or more disease-specific genes and one or more genes of unknown function; and
 - c) comparing the expression patterns of said disease-specific genes with the expression patterns of the genes of unknown function to identify a subset of the genes of unknown function which have similar expression patterns to those of the disease-specific genes.
2. The method of claim 1, wherein said obtaining dual channel DNA microarray images comprises
 - i) receiving a plurality of single channel DNA microarray images; and
 - ii) determining the ratio between said single channel DNA microarray images to yield a plurality of dual channel DNA microarray images.
3. The method of claim 1, wherein said comparing comprises
 - i) generating an expression data vector for each expressed gene by categorizing whether each gene is differential expressed or not differentially expressed;
 - ii) analyzing vectors for two or more expressed genes to determine a co-differential expression probability; and
 - iii) determining whether said probability for said two or more expressed genes is less than a specified probability threshold.
4. The method of claim 1, further comprising the step of translating said subset of genes of unknown function to generate corresponding polypeptides.
5. A polynucleotide identified by the method of claim 1.
6. A polypeptide identified by the method of claim 5.
7. A computer program product comprising a machine readable medium on which is

provided program instructions for analyzing gene expression, the instructions comprising:

- code for receiving a plurality of dual channel DNA microarray images;
- code for analyzing said images to determine expression patterns of one or more disease-specific genes and one or more genes of unknown function; and
- code for comparing the expression patterns of said disease-specific genes with the expression patterns of the genes of unknown function to identify a subset of the genes of unknown function which have similar expression patterns to those of the disease-specific genes.

8. The computer program product of claim 7, wherein said code for comparing expression patterns comprises

- code for generating an expression data vector for each expressed gene by categorizing whether each gene is differentially expressed or not differentially expressed;
- code for analyzing vectors for two or more expressed genes to determine a co-differential expression probability; and
- code for determining whether the probability for said two or more expressed genes is less than a specified probability threshold.

9. The computer program product of claim 7, further comprising code for translating said subset of genes of unknown function to generate corresponding polypeptides.

10. The computer program product of claim 7, wherein said code for obtaining dual channel DNA microarray images comprises

- code for receiving a plurality of single channel DNA microarray images; and
- code for determining the ratio between said single channel DNA microarray images to yield a plurality of dual channel DNA microarray images.

11. A computing device comprising a memory device configured to store at least temporarily program instructions for analyzing gene expression, the instructions comprising:

- code for receiving a plurality of dual channel DNA microarray images;

code for analyzing said images to determine expression patterns of one or more disease-specific genes and one or more genes of unknown function; and

code for comparing the expression patterns of said disease-specific genes with the expression patterns of the genes of unknown function to identify a subset of the genes of unknown function which have similar expression patterns to those of the disease-specific genes.

12. The computing device of claim 11, wherein said code for comparing expression patterns comprises

code for generating an expression data vector for each expressed gene by categorizing whether each gene is differentially expressed or not differentially expressed;

code for analyzing vectors for two or more expressed genes to determine a co-differential expression probability; and

code for determining whether the probability for said two or more expressed genes is less than a specified probability threshold.

13. The computing device of claim 11, further comprising code for translating said subset of genes of unknown function to generate corresponding polypeptides.

14. The computing device of claim 11, wherein said code for obtaining dual channel DNA microarray images comprises

code for receiving a plurality of single channel DNA microarray images; and

code for determining the ratio between said single channel DNA microarray images to yield a plurality of dual channel DNA microarray images.

15. A substantially purified biomolecule for use in the diagnosis or treatment of a disease associated with cell proliferation, said biomolecule selected from the group consisting of:

(A) a polynucleotide selected from the group consisting of SEQ ID NO: 7, SEQ ID NO:13, and SEQ ID NO:17;

(B) a polynucleotide which encodes a polypeptide selected from the group consisting of SEQ ID NO:8, SEQ ID NO:14, and SEQ ID NO:18;

- (C) a polynucleotide having at least 70% identity to the polynucleotide of (A) or (B);
- (D) a polynucleotide which is complementary to the polynucleotide of (A), (B), or (C);
- (E) a polynucleotide comprising at least 18 sequential nucleotides of the polynucleotide of (A), (B), (C), or (D);
- (F) a polypeptide selected from the group consisting of SEQ ID NO:8, SEQ ID NO:14, and SEQ ID NO:18;
- (G) a polypeptide having at least 85% identity to the polypeptide of (F); and
- (H) a polypeptide comprising at least 6 sequential amino acids of the polypeptide of (F) or (G).

16. The substantially purified biomolecule of claim 15, comprising a polynucleotide sequence selected from the group consisting of:

- (A) a polynucleotide selected from the group consisting of SEQ ID NO: 7, SEQ ID NO:13, and SEQ ID NO:17;
- (B) a polynucleotide which encodes a polypeptide selected from the group consisting of SEQ ID NO:8, SEQ ID NO:14, and SEQ ID NO:18;
- (C) a polynucleotide having at least 70% identity to the polynucleotide of (A) or (B);
- (D) a polynucleotide which is complementary to the polynucleotide of (A), (B), or (C);
- (E) a polynucleotide comprising at least 18 sequential nucleotides of the polynucleotide of (A), (B), (C), or (D); and
- (F) a polynucleotide which hybridizes under stringent conditions to the polynucleotide of (A), (B), (C), (D), or (E).

17. The substantially purified biomolecule of claim 15, comprising a polypeptide sequence selected from the group consisting of:

- (A) a polypeptide selected from the group consisting of SEQ ID NO:8, SEQ ID NO:14, and SEQ ID NO:18;
- (B) a polypeptide having at least 85% identity to the polypeptide of (A); and

(C) a polypeptide comprising at least 6 sequential amino acids of the polypeptide of (A) or (B).

18. An expression vector comprising the polynucleotide of claim 15.

19. A host cell comprising the expression vector of claim 18.

20. A method for producing a polypeptide of claim 11, the method comprising the steps of:

- a) culturing the host cell of claim 19 under conditions suitable for the expression of the polypeptide; and
- b) recovering the polypeptide from the host cell culture.

21. A pharmaceutical composition comprising the biomolecule of claim 15 in conjunction with a suitable pharmaceutical carrier.

22. An antibody which specifically binds to the polypeptide of claim 15.